CLAIMS

1. A method of estimating a Signal Interference Ratio (SIR) of a pilot channel in a MC-CDMA system, comprising the steps of:

receiving a spread spectrum signal including a pilot channel signal and a plurality of data channel signals;

despreading the pilot channel signal using a plurality of Spread Factors (SF);

determining the SIR for each of the plurality of SF;

comparing each of the determined SIRs with a predetermined threshold value; and

selecting as the estimated SIR, the SIR of the first SF that is below the predetermined threshold value.

2. The method of estimating a SIR of a pilot channel of claim 1, further comprising the step of:

storing each of the determined SIRs for the plurality of SF in a memory.

3. The method of estimating a SIR of a pilot channel of claim 1, wherein the despreading step comprises:

despreading the pilot channel with an $SF=2^n$, where n=1 to m, where m is an integer.

4. The method of estimating a SIR of a pilot channel of claim 1, further comprising the step of:

performing adaptive modulation and coding and equalization using the selected estimated SIR.

5. The method of estimating a SIR of a pilot channel of claim 1, wherein the predetermined threshold is between about 5db and about 10db.

6. A method of estimating a Signal Interference Ratio (SIR) of a pilot channel in a MC-CDMA system, comprising the steps of:

receiving a spread spectrum signal including a pilot channel signal and a plurality of data channel signals;

despreading the pilot channel signal using a plurality of Spread Factors (SF);

determining the SIR for each of the plurality of SF;

storing each of the determined SIRs for the plurality of SF in a memory;

comparing each of the determined SIRs with a predetermined threshold value; and

selecting as the estimated SIR, the SIR of the first SF that is below the predetermined threshold value.

7. The method of estimating a SIR of a pilot channel of claim 6, wherein the despreading step comprises despreading the pilot channel with an $SF=2^n$, where n equals 1 to m, and m is an integer.

8. In an MC-CDMA system, a receiver circuit for estimating a Signal Interference Ratio (SIR) of a received spread spectrum signal including a pilot channel and a plurality of data channels, the receiver circuit comprising:

a pilot channel despreader that receives the spread spectrum signal and despreads the pilot channel using a predetermined spread factor (SF) to generate a corresponding despread pilot channel signal;

an average pilot symbol module, connected to the pilot channel despreader, that receives the despread pilot channel signal and filters noise therefrom, to generate a filtered despread signal;

a first average power module connected to the average pilot symbol module for receiving the filtered despread pilot channel signal and generating a first signal power signal;

a first mixer, connected to the pilot channel despreader and the average pilot symbol module, that combines the filtered despread signal and the despread pilot channel signal to form a first combined signal;

a second average power module connected to the first mixer for receiving the first combined signal and generating an interference power signal;

a second mixer, connected to the first and second average power modules, for generating second signal power signal;

a signal interference module, connected to the second mixer and the second average power module, for generating a signal interference ratio (SIR) for the pilot channel signal with the first SF;

a memory connected to the signal interference module for storing the generated SIR;

an incrementor, connected to the pilot channel despreader, for incrementing the value of the SF so that a next SIR is generated corresponding to the incremented SF;

a comparator for comparing each of the generated SIRs with a predetermined threshold value, wherein the estimated SIR is determined as the first SIR that is below the predetermined threshold value.

9. The receiver circuit of claim 8, wherein the incrementor increments the SF by multiplying the prior SF by two.

10. The receiver circuit of claim 8, further comprising a first gain element connected after the second average power module and before the second mixer and the signal interference module.

11. The receiver circuit of claim 10, further comprising a second gain element connected between the first gain element and the second mixer.